

## CLAIMS

1. A controllable magnetic bearing apparatus sensing a position of a rolling element supported by a magnetic bearing and controlling the position thereof, the apparatus comprising:

means for moving said rolling element in a stationary state in a predetermined direction to determine an amount of movement thereof to a movement limit; and

means for determining a machine type of the magnetic bearing based on said amount of movement and setting control parameters.

2. A controllable magnetic bearing apparatus sensing a position of a rolling element supported by a magnetic bearing and controlling the position thereof, the apparatus comprising:

means for moving said rolling element in a stationary state in plural directions to determine respective amounts of movement thereof to respective movement limits;

means for determining a mean amount of movement based on said amounts of movement; and

means for determining a machine type of the magnetic bearing based on the mean amount of movement and setting control parameters.

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3. A method for determining a machine type of a magnetic bearing comprising the steps of:

moving a rolling element supported by a magnetic bearing from a rest position to place on one side of a first radial axis and determining an amount of movement thereof to a movement limit;

then moving said rolling element to place on one side of a second radial axis and determining an amount of movement thereof to a movement limit;

then moving said rolling element to place on the other side of the first radial axis and determining an amount of movement thereof to a movement limit;

then moving said rolling element to place on the other side of the second radial axis and determining an amount of movement thereof to a movement limit;

operating a mean amount of movement based on said amounts of movement; and

determining a machine type of the magnetic bearing based on said mean amount of movement and setting control parameters.

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